ABSTRACT

A reconfigurable test system including a host computer coupled to a reconfigurable test instrument. The reconfigurable test instrument includes reconfigurable hardware – i.e. a reconfigurable hardware module with one or more programmable elements such as Field Programmable Gate Arrays for realizing an arbitrary hardware architecture and a reconfigurable front end with programmable transceivers for interfacing with any desired physical medium – and optionally, an embedded processor. A user specifies system features with a software configuration utility which directs a component selector to select a set of software modules and hardware configuration files from a series of libraries. The modules are embedded in a host software driver or downloaded for execution on the embedded CPU. The configuration files are downloaded to the reconfigurable hardware. The entire selection process is performed in real-time and can be changed whenever the user deems necessary. Alternatively, the user may create a graphical program in a graphical programming environment and compile the program into various software modules and configuration files for host execution, embedded processor execution, or programming the reconfigurable hardware.